Stage 5 Information and Software Technology

Unit 1: Database design (Option 3) program

Unit title: My business

Duration: 15 weeks **Sequence:** Term 1 – Week 5 Term 2

Project overview	**The shop** As the manager of a business you wish to implement software solutions that will allow you to communicate, track and promote the activities of your business to your clients and employees.

Syllabus outcomes

A student:

5.3.2 acquires and manipulates data and information in an ethical manner
5.1.2 selects, maintains and appropriately uses hardware for a range of tasks
5.3.1 justifies responsible practices and ethical use of information and software technology
5.5.3 describes and compares key roles and responsibilities of people in the field of information and software technology
5.2.1 describes and applies problem-solving processes when creating solutions
5.2.2 designs, produces and evaluates appropriate solutions to a range of challenging problems
5.2.3 critically analyses decision-making processes in a range of information and software solutions
5.1.1 selects and justifies the application of appropriate software programs to a range of tasks.

Assessment outcomes

A student:

5.3.1 justifies responsible practices and ethical use of information and software technology
5.2.1 describes and applies problem-solving processes when creating solutions
5.2.2 designs, produces and evaluates appropriate solutions to a range of challenging problems

Assessment tasks

Project

As the manager of a business you wish to implement software solutions which will allow you to:

- communicate with your clients regarding the promotion of a 10th anniversary sale
- track the sales activities of your business.

Case study

- Why does the information acquired throughout BigW need to be secured?
- E-Commerce is a new area for BigW. What security methods could be implemented that would make you confident in using this service?
- What is customer profiling?
- What responsibilities does BigW have to its clients and the wider community when customer profiling?

Practical task 1

Students learn about:	Students learn to:	Teaching and learning strategies	Resources	Reg
Database development • purpose of a database • components of a database • inputs of a database **Methods of processing and analysing data** • editing, searching, sorting records	• define and describe a database • explain the purpose of a database • describe the relationships between a database, file, record, field and data, character • construct query searches and sorts on given data • edit existing fields and records within a database	**Practical task 1** • Describe the purpose of a database. List 10 databases in which your personal details are contained. • Record in the *Glossary of Terms.wdb* definitions and examples of database components. • Character referencing and storage. Explain use of ascii and Unicode tables. Relate to binary notation. • Considerations of GUI in form design – group like items, prioritising items, layout and placement of fields to enhance intuitive use. • Explain query and filter. Demonstrate use of queries/filters.	• *MsWorks*	

Case study

Students learn about:	Students learn to:	Teaching and learning strategies	Resources	Reg
Data handling **Data sources** such as • books • internet • magazines • journals **Data security** • need for data security • basic security methods **Issues** **Industrial issues** such as • rights and responsibilities of users of Information and Software Technologies • ergonomic principles and industry standards	• acquire, manipulate and acknowledge data and information in solving a specific problem • analyse a case study to observe ethical practice in the use of data and information • explain the reasons why data needs to be secured • compare and contrast basic security methods used to protect data • identify rights and responsibilities of users of Information and Software Technologies • identify ergonomic principles and industry standards • recognise ergonomically unsound practices	**Case study** Students view video and complete case study using MsWord. • What problem is IT solving for *BigW*? • How is data acquired? – bar code – hand scanner – keyboard input. • What is the function of the local database stored on the back office server? • What is the role of *BigW* main database located in North Sydney? • Where is this data acquired from? • How often is the data acquired? • Why does the information acquired throughout *BigW* need to be secured? • E-Commerce is a new area for *BigW*. What security methods could be implemented that would make you confident in using this service? • What is customer profiling? • What responsibilities does *BigW* have to its clients and the wider community when customer profiling?	• *BigW* video	•

Practical task 2

Students learn about:	Students learn to:	Teaching and learning strategies	Resources	Reg
People **Roles and responsibilities** of people working in the information and software technology field such as • project manager • data entry operators • systems analyst • users • technicians such as repair, maintenance • multimedia specialists • software engineers • support staff such as help desk • training specialists • programmers **Careers in information and software technology** • career paths	• describe key roles within the information and software technology field and critically analyse possible role stereotypes • examine the contribution of people to the field of information and software technology • examine roles of people working in the field of information and software technology • explore career opportunities and pathways for people within the field of information and software technology • discuss the use of information technology skills across industry and for self employment.	**Practical task 2** • Brainstorming required data to complete report on two selected IT careers. Teacher categorises data into fields (on whiteboard). • Students open Ms Access and using the table design view create fields and assign data attributes. • Students use Access form wizard to create data entry form. Edit form to enhance visual appeal (clipart, labels, etc). Save as careers.mdb. • Populate database sourcing information from www.mycareer.com.au • Using database as a research tool students complete report on their selected two careers.	• Ms Access • www.mycareer.com.au	

Students learn about:	Students learn to:	Teaching and learning strategies	Resources	Reg
Data sources such as • books • internet • magazines • journals **Data security** • need for data security • basic security methods **Industrial issues** such as • rights and responsibilities of users of Information and Software Technologies • ergonomic principles and industry standards	• acquire, manipulate and acknowledge data and information in solving a specific problem • analyse a case study to observe ethical practice in the use of data and information • explain the reasons why data needs to be secured • compare and contrast basic security methods used to protect data • identify rights and responsibilities of users of Information and Software Technologies • identify ergonomic principles and industry standards • recognise ergonomically unsound practices	**Practical task 2**		•
Database development • outputs of database: reports, forms, data/information • data types required to solve a problem	• identify outputs when designing a database • create a data dictionary to illustrate and describe data types			•

Students learn about:	Students learn to:	Teaching and learning strategies	Resources	Reg
Data handling **Data and information** • importance of information to society, particularly in electronic form	• define and compare data with information • explain the process of deriving information from data and apply the process to a given scenario		•	•
Methods of presenting information • presentation of reports: header, body text, footer • report layouts • design features on forms and reports	• prepare a range of report layouts for presentation • create an effective design for database form		•	•

Project: The shop

Students learn about:	Students learn to:	Teaching and learning strategies	Resources	Reg
Integration • importing from existing electronic data • exporting data for other uses	• import data, such as a graphic element, from a different source • create a mail merge from stored data	**Project: The shop** • Teacher models process of need identification. • Brainstorm project components such as database design, collecting graphics, writing promotional material, using mail merge, etc. From brainstorm define further sub projects. • Select two ideas from subprojects, e.g. writing promotional material and conduct a *Positive, Minus and Interesting* (PMI) activity. • Students: – list input data and define data types – group like data together into three tables – label the three tables, e.g. client ratings, client detail, purchase details. • Teacher creates data dictionary for the tables.	•	•
Project development • processes and techniques	• design, produce and evaluate a simple project for a real-world application either separately for this option, or integrated with other options		•	•
Design, produce and evaluate **Defining and analysing the problem** • identification of need or problem to be solved • factors that impact on problem solving: – technical such as hardware – operational – financial – ethical.	• identify the need or problem to be solved • analyse the problem and a range of possible solutions • identify and analyse the factors that may impact on the solution	• Students create three tables using the data dictionary using Ms Access. • Teacher demonstrates use of primary keys and table relationships. Teacher sets up each student's primary keys and relationships. • Teacher models the editing process using a poorly designed input form to create an intuitive and user friendly input form. Teacher demonstrates use of features and elements of a GUI. • Students create and edit forms using principles of GUI.	•	•

Students learn about:	Students learn to:	Teaching and learning strategies	Resources	Reg
Software **Interface design** • the function of the user interface • interactivity with the user • communication with application and operating systems	• explain the function of the user interface • compare and contrast types of user interfaces	• Students populate database. • Students enter definitions and examples of DTP terms into glossary of terms.mdb • Students develop skills by replicating sample document. • Students create one page flier promoting their business anniversary. • Teacher demonstrate mail merge. • Students mail merge and print documents. • Teacher demonstrates use of Ms Access report wizard and design view. Students create their reports. • Using tutorials students create a field to calculate sales totals.	•	•
Features and elements of a graphical user interface (GUI) such as • consistency of elements • functionality • navigation • radio buttons, list boxes • borders and white space • instructions to the user • inclusive design factors	• explain the features and elements of GUI in a range of applications • design, produce and manipulate features of GUI • establish the criteria for the evaluation of GUI • evaluate the effectiveness of GUI features and elements for a specific purpose		•	•